

What Is Claimed Is:

1. Apparatus for providing access to a functioning vascular system of a patient, said apparatus comprising:

a main body having sidewalls defining an interior region and an exterior region, and a bottom end and a top end;

a base being formed at said bottom end of said main body, securing means being configured on said base so as to allow attachment and formation of a seal between said base and the functioning vascular system of the patient, and said base being configurable to provide a passageway from said interior region of said main body to the functioning vascular system of the patient; and

a cover being formed at said top end of said main body, wherein said cover provides a barrier between said interior region and said exterior region at said top end of said main body.

2. Apparatus according to claim 1 wherein said sidewalls of said main body are tapered inwardly from said top end to said bottom end.

3. Apparatus according to claim 1 wherein said interior region comprises saline so as to provide an air-free environment therein.

4. Apparatus according to claim 1 wherein said interior region comprises carbon dioxide so as to provide an air-free environment therein.

5. Apparatus according to claim 1 wherein said interior region comprises a solution of saline and carbon dioxide so as to provide an air-free environment therein.

6. Apparatus according to claim 1 wherein said main body comprises a flexible material.

7. Apparatus according to claim 6 wherein said flexible material comprises urethane.

8. Apparatus according to claim 1 wherein said cover is integral with said main body.

9. Apparatus according to claim 1 wherein said top end of said main body includes a mount, wherein said cover is removably attachable to said mount on said main body.

10. Apparatus according to claim 9 wherein said mount is formed of a substantially rigid material.

11. Apparatus according to claim 10 wherein said material comprises polycarbonate.

12. Apparatus according to claim 1 wherein said passageway in said base comprises an opening formed therein prior to attachment to the functioning vascular system of the patient.

13. Apparatus according to claim 1 wherein said passageway in said base comprises an opening formed therein after said base is attached to the functioning vascular system of the patient.

14. Apparatus according to claim 1 wherein said securing means comprises a stitching cuff extending around the perimeter of said base.

15. Apparatus according to claim 1 wherein said cover comprises a port therein, said port being configured to permit access between said exterior region and said interior region of said main body.

16. Apparatus according to claim 15 wherein said port comprises a base for a Luer lock fitting.

17. Apparatus according to claim 15 wherein said port comprises an entire Luer lock fitting.

18. Apparatus according to claim 15 wherein said port comprises an instrument passageway.

19. Apparatus according to claim 18 wherein said instrument passageway comprises a penetrable seal.

20. Apparatus according to claim 1 wherein said cover comprises a substantially rigid material.

21. Apparatus according to claim 20 wherein said substantially rigid material comprises polycarbonate.

22. Apparatus according to claim 1 wherein said sealing means comprises a vacuum seal.

23. Apparatus according to claim 1 wherein said sealing means comprises hooks.

24. Apparatus according to claim 1 wherein said sealing means comprises an adhesive material.

25. Apparatus according to claim 1 wherein said base comprises a blade guide for forming said passageway from said interior region of said main body to the functioning vascular system.

26. Apparatus according to claim 1 wherein said base is selectively configurable between a first configuration and a second configuration, further

wherein said passageway from said interior region of said main body to the functioning vascular system of the patient is substantially closed in said first configuration and said passageway from said interior region of said main body to the functioning vascular system of the patient is substantially open in said second configuration.

27. Apparatus according to claim 26 wherein said body is selectively configured between said first configuration and said second configuration by squeezing a pair of opposed ends of said body toward one another.

28. A method for providing access to a functioning vascular system of a patient, said method comprising:

providing apparatus for providing access to a functioning vascular system of a patient, said apparatus comprising:

a main body having sidewalls defining an interior region and an exterior region, and a bottom end and a top end;

a base being formed at said bottom end of said main body, securing means being configured on said base so as to allow attachment and formation of a seal between said base and the functioning vascular system of the patient, and said base being configurable to provide a passageway from said interior region of said main body to the functioning vascular system of the patient; and

a cover being formed at said top end of said main body, wherein said cover provides a barrier between said interior region and said exterior region at said top end of said main body;

attaching said securing means of said base to a selected portion of the functioning vascular system of the patient;

forming an incision in said selected portion of the vascular system of the patient within an interior boundary of said base in attachment thereto;

passing an instrument through said incision formed in said selected portion of the vascular system of the patient;

closing said incision in said selected portion of the vascular system of the patient within said interior boundary of said base in attachment thereto; and

removing at least a portion of said apparatus from the functioning vascular system of a patient.

29. A method according to claim 28 further comprising the step of forming said passageway in said base from said interior region of said main body to the functioning vascular system of the patient prior to the step of attaching said securing means of said base to said selected portion of the functioning vascular system of the patient.

30. A method according to claim 28 further comprising the step of forming said passageway in said base from said interior region of said main body to the functioning vascular system of the patient subsequent to the step of attaching said securing means of said base to the selected portion of the functioning vascular system of the patient.

31. A method according to claim 28 further comprising the step of configuring said base to selectively open said incision formed in said selected portion of the vascular system of the patient prior to the step of passing an instrument therethrough.

32. A method according to claim 28 further comprising the step of placing a pursestring suture at said selected portion of the functioning vascular system of he patient prior to the step of attaching said securing means of said base thereto.

33. A method according to claim 32 further comprising the step of pulling said pursestring so as to reduce the size of said incision prior to the step of closing said incision.

34. A method according to claim 28 wherein the step of closing said incision comprises placing sutures thereacross.

35. A method according to claim 28 wherein the step of closing said incision comprises placing a closing mechanism thereacross.

36. A method according to claim 35 wherein said closing mechanism comprises one selected from a group consisting of wire, staples and an adhesive.

37. A method according to claim 28 wherein the step of removing at least a portion of said apparatus further comprises over-stitching a remaining portion of said apparatus surrounding said incision.

38. A method according to claim 28 wherein the entire portion of said apparatus is removed from the patient.